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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,231	10/15/2003	Jeffrey S. Obert	100204021-1	6366

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EXAMINER	
DICHT, RACHEL S	
ART UNIT	**PAPER NUMBER**
2853	

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

E/C

Office Action Summary	Application No.	Applicant(s)	
	10/686,231	OBERT ET AL.	
	Examiner	**Art Unit**	
	Rachel Dicht	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) *19-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on 12 October 2005 is acknowledged. The traversal is on the ground(s) that the characterization contradicts the inventive elements described in the claims. This is not found persuasive because group I is drawn to a device and group II is drawn to the method of manufacturing requiring different searches and different classifications.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson (US Pat. No. 4,680,859).

In regard to:

Claim 1:

Johnson teaches a device comprising: a substrate (10, Fig. 1) having a thickness extending between a first surface (32, Fig. 3A) and a generally opposing second surface (18, Fig. 2); at least one patterned thin-film (34, Fig. 3A) positioned over the first surface; an orifice layer (12, Fig. 2) positioned over the at least on thin-film; and, an elongated slot (16, Fig. 3A) in the substrate between the first and the second surface, wherein the slot has a first length along the first surface taken generally parallel to a long axis of the slot, and a second shorter length that is spaced from and generally parallel to the first length, and wherein at least a portion of the slot is formed after the orifice layer is positioned over the thin-film (refer to column 3 lines 29-35 and 49-53).

Claim 3:

Johnson teaches a device wherein the orifice layer (12, Fig. 2) has nozzles (14, Fig. 1) formed therein which are respectively positioned in fluid flowing relation with features (ink flow ports 70, 72, 74, 76, 78, and 80, Fig. 3B; and ink reservoirs 46 and 48 Fig. 3A) formed in the at least one thin-film, and wherein some of the nozzles and features aid in slot formation and fluid ejection (refer to column 4 lines 27-39)

Claim 4:

Johnson teaches a device wherein the first length defines a maximum slot length (distance of slot 16 from edges of thin film resistor substrate 10, Fig. 1).

Claim 5:

Johnson teaches a device wherein the second length defines a minimum slot length (region outlined of slot 16 at bottom of thin film resistor substrate, Fig. 1).

Claim 6:

Johnson teaches a device wherein the slot (16, Fig. 1) comprises at least one reinforcement structure (orifice plate 12, Fig. 2) that extends generally across the slot in a direction generally parallel to a short axis of the slot.

Claim 7:

Johnson teaches a device comprising a substrate (10, Fig. 1) having a slot (16, Fig. 1) formed therein between a first substrate surface (32, Fig. 3A) and a generally opposing second substrate surface (18, Fig. 2); and, a layer assembly formed over the first substrate surface, the slot being defined, at least in part, by two generally oppositely positioned end walls of substrate material, wherein each end wall has an endwall portion (sloping end walls of slot 16 located at either end of thin film resistor substrate 10, Fig. 1) which intersects the first surface at an obtuse angle as measured through the substrate material, and wherein each wall end portion is formed, at least in part, with the layer assembly in place over the substrate (refer to column 3 lines 29-35 and 49-53).

Claim 8:

Johnson teaches the device wherein the layer assembly comprises a first sub-assembly of layers (layers surrounding and including thin layer 34, Fig. 3A) formed over the first surface of the substrate and at least a second sub-assembly of layers (barrier layer 42 and layer located below it, Fig. 3A) formed over the first sub-assembly of layers the second sub-assembly of layers defining multiple firing chambers (46 and 48, Fig. 3A) and multiple respectively positioned nozzles (made up of contoured walls 50 and 52, Fig. 3A).

Claim 10:

Johnson teaches the device wherein each end wall portion comprises multiple faceted surfaces (refer to column 3 lines 49-64).

Claim 12:

Johnson teaches the device embodied as a print head (refer to column 3 lines 23-28).

Claim 13:

Johnson teaches the device included in a print cartridge (refer to column 3 lines 23-28).

Claim 14:

Johnson teaches a device comprising: an elongated slot (16, Fig. 1) formed in a substrate (10, Fig. 1) and extending between a first generally planar substrate surface (32, Fig. 3A) and a second generally planar substrate surface (18, Fig. 2), the elongated slot having a long axis and a short axis transverse the long axis; and, an orifice layer (12, Fig. 1) formed over the first surface, wherein a region of the slot proximate the first surface approximated a portion of a trapezoid when viewed transverse a short axis of the slot (refer to Fig. 1), wherein a longest side of the trapezoid lies proximate the first surface (32, Fig. 3A), and wherein at least a portion of the slot is formed after the orifice layer is formed over the first surface (refer to column 3 lines 29-35 and 49-53).

Claim 15:

The device of Johnson DIFFERS from claim 15 in that it fails to teach the device wherein the slot has a maximum length in a direction which is generally parallel to the slot's long axis, the maximum length laying proximate to the first surface (32, Fig. 3A).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2, 9, 11, 16, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US Pat. No. 4,680,859) in view of Cowger (US Pat. No. 6,343,857).

In regard to:

Claim 2:

The device of Johnson DIFFERS from claim 2 in that it fails to teach a device wherein the slot has a third length along the second surface taken generally parallel to the long axis that is greater than the second length.

However, Cowger teaches a device wherein the slot (72, Fig. 7) has a third length (length of slot 72 moving down printhead, Fig. 7) along the second surface (surface nearest to flex circuit 54, Fig. 7) taken generally parallel to the long axis that is greater than the second length.

Claim 9:

The device of Johnson DIFFERS from claim 9 in that it fails to teach a device wherein at least some of the multiple firing chambers are not utilized in fluid ejection.

However, Cowger teaches a device wherein at least some of the multiple firing chambers are not utilized in fluid ejection (refer to column 2 lines 24-34).

Claim 11:

The device of Johnson DIFFERS from claim 11 in that it fails to teach a device wherein each end wall portion extends through less than one half of the thickness extending between the first substrate surface and the second substrate surface.

However, Cowger teaches a device wherein each end wall portion (side walls of slot 72, Fig. 7) extends through less than one half of the thickness extending between the first substrate surface and the second substrate surface (Fig. 7 shows slot 72 extending at most half way into substrate 92 and layer below).

Claim 16:

The device of Johnson DIFFERS from claim 16 in that it fails to teach the device wherein the slot has a maximum length in a direction which is generally parallel to a long axis of the slot, the maximum length lying proximate to the second surface.

However, Cowger teaches the device wherein the slot has a maximum length in a direction which is generally parallel to a long axis of the slot, the maximum length lying proximate to the second surface (surface nearest to flex circuit 54, Fig. 7).

Claim 17:

The device of Johnson DIFFERS from claim 17 in that it fails to teach the device wherein the region of the slot which approximates a portion of a trapezoid extends from the first surface through less than half of the thickness of the substrate as defined between the first and second surfaces.

However, Cowger teaches the device wherein the region of the slot (72, Fig. 7) which approximates a portion of a trapezoid extends from the first surface through less than half of the thickness of the substrate as defined between the first and second surfaces (Fig. 7 shows slot 72 extending at most half way into substrate 92 and layer below).

Claim 18:

The device of Johnson DIFFERS from claim 18 in that it fails to teach the device wherein the region of the slot that approximates a portion of a trapezoid is generally continuous, and further comprising a generally discontinuous slot region proximate the second surface, the generally discontinuous slot region being defined, at least in part, by one or more reinforcement structures that extend across the slot generally parallel to the short axis of the slot.

However, Cowger teaches the device wherein the region of the slot (72, Fig. 7) that approximates a portion of a trapezoid is generally continuous, and further comprising a generally discontinuous slot (100, Fig. 7) region proximate the second surface (side closest to flex circuit 54, Fig. 7), the generally discontinuous slot region being defined, at least in part, by one or more reinforcement structures (96, Fig. 7) that extend across the slot generally parallel to the short axis (axis running widthwise of slot 72, Fig. 7) of the slot.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Johnson to have the longest side of the trapezoid proximate the second surface as taught by Cowger for the purpose of the removal or air from the ink.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD
November 3, 2005

11/9/05
MANISH S. SHAH
PRIMARY EXAMINER